

II. Amendments to the Claims

This listing and version of the claims replaces all prior listings and versions of the claims.

1-19. (canceled)

20. (previously presented) A system for manufacturing an insulation product comprising:

a conveyor for conveying an insulation sheet containing randomly oriented fibers bonded together, said sheet having first and second major surfaces and a pair of side portions;

means for applying a layer of bicomponent fibers to at least one of said major surfaces, each of said bicomponent fibers including first component and second component portions, said means for applying being coupled to a bicomponent fiber source containing said bicomponent fibers; and

a heater disposed to heat said layer and said sheet, thereby forming a nonwoven layer meltbonded to said at least one of said major surfaces,

wherein said means for applying includes:

a chamber disposed above said conveyor for depositing said bicomponent fibers onto said sheet, said chamber having a side wall, a top wall, and an opening at a bottom thereof; and

at least one blower for transmitting said bicomponent fibers to said chamber, and

wherein said chamber includes at least one opening on a side thereof coupled to said blower through a hose, wherein said hose is oriented at an upward orientation toward said top wall such that the bicomponent fibers are blown into said chamber at an upward orientation toward said top wall.

21. (original) The system of claim 20, wherein said second component portion has a higher melting point than said first component portion, said heater heating said layer to a temperature at or above the melting temperature of said first component portion, whereby said first component portion of said bicomponent fibers is meltbonded to said randomly oriented fibers in said insulation sheet.

22. (original) The system of claim 21, wherein said sheet contains mineral fibers, polymeric fibers, rotary glass fibers, textile glass fibers, stonewool fibers, or a combination thereof.

23. (original) The system of claim 21, wherein said first component portion comprises a thermoplastic.

24. (original) The system of claim 21, wherein said first and second component portions are selected from the group consisting of polyethylene, polypropylene, polyester, polyethylene terephthalate, polybutylene terephthalate, polycarbonate, polyamide, polyphenylene sulfide, polyolefin, PET (polyester) PEN polyester, nylon 6,6 PCT polyester, polypropylene PBT polyester, nylon 6 co-polyamides, polylactic acid polysterene, acetal polyurethane, and soluble copolyester HDPE, LLDPE.

25-26. (canceled)

27. (previously presented) The system of claim 20, wherein said top wall includes an air filter configured to block said bicomponent fibers from escaping through said top wall.

28. (canceled)

29. (previously presented) A system for applying a facing layer to an insulation product comprising:

a conveyor for conveying an insulation product, said insulation product comprising an insulation mat or board containing randomly oriented fibers bonded together, said product having first and second major surfaces and a pair of side portions;

means for depositing bicomponent fibers onto said first major surface of said insulation product to form a layer of bicomponent fibers thereon, each of said bicomponent fibers including first component and second component portions, said means for depositing being coupled to a bicomponent fiber source containing said bicomponent fibers; and

a heater disposed to heat said deposited layer of bicomponent fibers, thereby forming a nonwoven facing layer meltbonded to said first major surface,

wherein said means for depositing includes:

a chamber disposed above said conveyor for depositing said bicomponent fibers onto said insulation product, said chamber having a side wall, a top wall, and an opening at a bottom thereof; and

at least one blower for transmitting said bicomponent fibers to said chamber, and

wherein said chamber includes at least one opening on a side thereof coupled to said blower through a hose, wherein said hose is oriented at an upward orientation toward said top wall.

30. (previously presented) The system of claim 29, wherein said second component portion has a higher melting point than said first component portion, said heater heating said layer to a temperature at or above the melting temperature of said first component portion but below the melting temperature of said second component portion, whereby said first component portion of said bicomponent fibers is meltbonded to said randomly oriented fibers in said insulation product.

31. (previously presented) The system of claim 30, wherein said first component portion comprises a thermoplastic.

32. (previously presented) The system of claim 30, wherein said first and second component portions are selected from the group consisting of polyethylene, polypropylene, polyester, polyethylene terephthalate, polybutylene terephthalate, polycarbonate, polyamide, polyphenylene sulfide, polyolefin, PET (polyester) PEN polyester, nylon 6,6 PCT polyester, polypropylene PBT polyester, nylon 6 co-polyamides, polylactic acid polysterene, acetal polyurethane, and soluble copolyester HDPE, LLDPE.

33. (previously presented) The system of claim 29, wherein said bicomponent fibers comprise sheath-core bicomponent fibers, side-by-side bicomponent fibers, islands-in-the-sea bicomponent fibers, cospun fibers, or a combination thereof.

34-35. (canceled)

36. (previously presented) The system of claim 29, wherein said top wall includes an air filter configured to block said bicomponent fibers from escaping through said top wall.

37. (previously presented) The system of claim 29, wherein said bicomponent fibers are deposited on said insulation product in an amount less than or equal to 2.5 grams/ft².

38. (previously presented) A system for applying a facing layer to an insulation product comprising:

a conveyor for conveying an insulation product, said insulation product comprising an insulation mat or board containing randomly oriented fibers bonded together, said product having first and second major surfaces and a pair of side portions;

a bicomponent fiber deposition chamber disposed over said conveyor, said bicomponent fiber deposition chamber positioned to deposit bicomponent fibers onto said first major surface

of said insulation product to form a layer of bicomponent fibers thereon, each of said bicomponent fibers including first component and second component portions;

a source containing bicomponent fibers coupled to said bicomponent fiber deposition chamber; and

a heater disposed to heat said deposited layer of bicomponent fibers, thereby forming a nonwoven facing layer meltbonded to said first major surface,

wherein said second component portion has a higher melting point than said first component portion, said heater heating said layer to a temperature at or above the melting temperature of said first component portion but below the melting temperature of said second component portion, whereby said first component portion of said bicomponent fibers is meltbonded to said randomly oriented fibers in said insulation product,

wherein said bicomponent fibers comprise sheath-core bicomponent fibers, side-by-side bicomponent fibers, islands-in-the-sea bicomponent fibers, cospun fibers, or a combination thereof, and

wherein said bicomponent fiber deposition chamber includes at least one opening on a side thereof coupled to a blower through a hose, wherein said hose is oriented at an upward orientation toward a top wall of said bicomponent fiber deposition chamber.

39. (previously presented) The system of claim 38, wherein said first component portion comprises a thermoplastic.

40. (previously presented) The system of claim 38, wherein said first and second component portions are selected from the group consisting of polyethylene, polypropylene, polyester, polyethylene terephthalate, polybutylene terephthalate, polycarbonate, polyamide, polyphenylene sulfide, polyolefin, PET (polyester) PEN polyester, nylon 6,6 PCT polyester,

polypropylene PBT polyester, nylon 6 co-polyamides, polylactic acid polysterene, acetal polyurethane, and soluble copolyester HDPE, LLDPE.

41-42. (canceled)

43. (previously presented) The system of claim 38, wherein said bicomponent fibers are deposited on said insulation product in an amount less than or equal to 2.5 grams/ft².

44. (currently amended) A system for applying a facing layer to an insulation product comprising:

a conveyor for conveying an insulation product, said insulation product comprising an insulation mat or board containing randomly oriented fibers bonded together, said product having first and second major surfaces and a pair of side portions;

a bicomponent fiber deposition chamber disposed over said conveyor, said bicomponent fiber deposition chamber positioned to deposit bicomponent fibers onto said first major surface of said insulation product to form a layer of bicomponent fibers thereon, each of said bicomponent fibers including first component and second component portions, wherein said bicomponent fiber deposition chamber includes at least one opening on a side thereof coupled to a blower, wherein said bicomponent fibers are blown into said bicomponent fiber deposition chamber by said blower through said at least one opening on said side of said bicomponent fiber deposition chamber in an air stream having an upward orientation directed toward a top wall of said bicomponent fiber deposition chamber, wherein said blower is coupled to said at least one opening on said side of said bicomponent fiber deposition chamber through a conduit, wherein said conduit is oriented at an upward orientation toward the top wall of said bicomponent fiber deposition chamber;

a source containing bicomponent fibers coupled to said blower; and

a heater disposed to heat said deposited layer of bicomponent fibers, thereby forming a nonwoven facing layer meltbonded to said first major surface.

45. (previously presented) The system of claim 44, wherein said second component portion has a higher melting point than said first component portion, said heater heating said layer to a temperature at or above the melting temperature of said first component portion but below the melting temperature of said second component portion, whereby said first component portion of said bicomponent fibers is meltbonded to said randomly oriented fibers in said insulation product.

46. (previously presented) The system of claim 44, wherein said bicomponent fibers comprise sheath-core bicomponent fibers, side-by-side bicomponent fibers, islands-in-the-sea bicomponent fibers, or cospun fibers.

47. (canceled)